

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Application No. 10/660,687

Applicant: Mueller et al.

Filed: September 11, 2003

TC/AU: 2822

Examiner: Guerrero

Docket No.: 00001CON (LVM Reference No. 224367)

Customer No.: 29050

**RECEIVED  
CENTRAL FAX CENTER**

**OCT 16 2006**

**DECLARATION UNDER 37 C.F.R. § 1.131 OF  
BRIAN MUELLER, JEFFREY CHAMBERLAIN, AND DAVID SCHROEDER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450


We, Brian Mueller, Jeffrey Chamberlain, and David Schroeder, do hereby declare:

1. We are the inventors of the subject matter disclosed and claimed in the above-identified patent application ("the present invention").
2. The present invention was conceived of and reduced to practice prior to January 6, 2000.
3. As merely an example of both the conception and reduction to practice of the present invention, Exhibit A is attached to this Declaration.
4. Exhibit A is a true and accurate copy an internal memo written before January 6, 2000. Dates and irrelevant information have been redacted from Exhibit A as attached hereto. Exhibit A shows the results of polishing a substrate comprising silicon dioxide with a polishing composition comprising an abrasive (i.e., silica), an amine (i.e., dimethyl-amino-methyl-propanol), and a source of fluoride ions (i.e., HF).


Application No. 10/660,687

5. We hereby declare that all statements made herein of our own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 9-18-06

  
Brian Mueller

Date: 10/13/06

  
Jeffrey Chamberlain

Date: \_\_\_\_\_

\_\_\_\_\_  
David Schroeder

RECEIVED  
CENTRAL FAX CENTER

OCT 16 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 10/660,687

Applicant: Mueller et al.

Filed: September 11, 2003

TC/AU: 2822

Examiner: Guerrero

Docket No.: 00001CON (LVM Reference No. 224367)

Customer No.: 29050

DECLARATION UNDER 37 C.F.R. § 1.131 OF  
BRIAN MUELLER, JEFFREY CHAMBERLAIN, AND DAVID SCHROEDER

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

We, Brian Mueller, Jeffrey Chamberlain, and David Schroeder, do hereby declare:

1. We are the inventors of the subject matter disclosed and claimed in the above-identified patent application ("the present invention").
2. The present invention was conceived of and reduced to practice prior to January 6, 2000.
3. As merely an example of both the conception and reduction to practice of the present invention, Exhibit A is attached to this Declaration.
4. Exhibit A is a true and accurate copy an internal memo written before January 6, 2000. Dates and irrelevant information have been redacted from Exhibit A as attached hereto. Exhibit A shows the results of polishing a substrate comprising silicon dioxide with a polishing composition comprising an abrasive (i.e., silica), an amine (i.e., dimethyl-amino-methyl-propanol), and a source of fluoride ions (i.e., HF).

Application No. 10/660,687

5. We hereby declare that all statements made herein of our own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

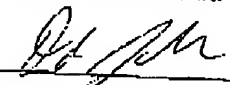
Date: \_\_\_\_\_

\_\_\_\_\_  
Brian Mueller

Date: \_\_\_\_\_

\_\_\_\_\_  
Jeffrey Chamberlain

Date: 10/16/2006

  
\_\_\_\_\_  
David Schroeder

**CABOT**DIVISION/SUBSIDIARY MMD

RECORD OF INVENTION DISCLOSURE

NO. MMD00001Title: High Rate Slurry for Oxide Polishing

## Description:

(Attach extra pages as required. Include drawings, sketches, photographs, etc., where helpful. Refer to number and page of Laboratory Notebook).

see attached

## SUBMITTER(s)

[Signature]  
(Signature of Submitter)Brian Mueller  
(Printed Name)

(Date)

[Signature]  
(Signature of Submitter)JEFFREY P. CHAMBERLAIN  
(Printed Name)

(Date)

[Signature]  
(Signature of Submitter)David J. Schneider  
(Printed Name)

(Date)

Explained to and understood by Witness not involved in the Project

[Signature]  
(Signature of Witness)Vlasta Brusic  
(Printed Name)

(Date)

PLEASE COMPLETE &amp; SEND TO INTELLECTUAL PROPERTY GROUP, BILLERICA

PAGE 10/11 \* RCVD AT 10/16/2006 5:45:07 PM [Eastern Daylight Time] \* SVR:USPTO-EFXRF-5/8 \* DNIS:2738300 \* CSID:312 616 5700 \* DURATION (mm-ss):02-14

BEST AVAILABLE COPY

RECEIVED  
CENTRAL FAX CENTER

OCT 16 2006

**R I D****Title:** High Rate Slurry for Oxide Polishing**Description:**

Soluble fluoride salts of amine chemistries are used in combination with slurries of fumed (or, potentially, precipitated) silica particles to polish IC wafers and glass layers on rigid memory disks (. . .). Specifically, a commercial silica slurry can be mixed on the platen during the polishing event (. . .) with a combination of fluoride ions and an amine.

Experimental results show that the removal rate of silicon dioxide is enhanced by the unique combination of chemistries.

The combination of DMAMP (dimethyl-amino-methyl-propanol) and HF actually increases the overall oxide removal rate by up to 29% over that of the control (Table I).

Potential applications for this invention include, but are not limited to, general ILD polishing, direct STI of IC wafers, and high-oxide removal rate for both IC and rigid disk manufacture.

**Table I**

DMAMP(F) dosage (molar)	removal rate (Å/min)	% difference from control
0 (control)	3128	0%
0.74	3794	+21%
1.44	4046	+29%
2.18	3946	+26%
2.88	3215	+3%
3.71	682	-78%